

II. REMARKS

Status of the Claims

Claim 2-7, and 10-18 are submitted for reconsideration.

Summary of the Office Action

Claims 2-7, 10-15, 17 and 18 stand rejected under 35USC103(a) on the basis of the cited reference Franz, et al, U.S. Patent No. 6,161,083. The Examiner is respectfully requested to reconsider his rejection in view of the following remarks.

The Invention

According to independent claim 18, the present invention relates to a method for inputting data into a system wherein, in the first step, one or more terms are identified in response to a user input, in particular in response to a spoken user input by means of a voice recognition system. For each of the identified terms a confidence value is determined that indicates the likelihood that the identified term matches the user input. This confidence value is determined only by comparing the user input with each of the identified terms.

Thus, according to the present invention, the confidence values for word recognition are solely based on the word recognition itself, without consideration of any earlier stored and/or recognized words or phrases. In the example given in the specification of this application, at page 20, line 30 through page 12, line 10, if a user pronounces the word "Müller" the system outputs a confidence value of 0.9 to have recognized the term "Müller" and a confidence value of 0.8 to have recognized

the term "Möller", without basing this confidence value on any pre-stored words.

Thereafter, the method according to the present invention determines the data records that match the identified terms in the example given in the specification after identifying the term "Mahler" with a confidence value 0.5 the system recognizes that the term 'Mahler" does not exist in the data records.

This clearly indicates that the voice recognition-does not base the recognition result confidence value on any earlier recognized or pre-stored words.

According to the method described in the present claim 18, in the next step, i.e., after identifying suitable terms for the voice input together with the confidence values, these terms are used to determine data records matching the identified terms and the probability values assigned to these data records.

Then, prior to processing the identified terms an overall probability is calculated from the confidence value of the identified term and the probability value of the matching data records.

Discussion of the Cited Reference

The Examiner has cited the reference Franz as the sole support for the rejection based on obviousness. The reference Franz discloses a translation apparatus and a translating method, wherein a first language sentence is divided into syntax units consisting of predetermined units of sentence structures as clauses and phrases. These are arranged in stages from large syntax units into small syntax units and, at each stage, stored examples, most similar to these syntax units are detected, using

probability models taking into account grammatical attributes of the syntax units and of the examples and using generalized linguistic knowledge and with reference to a thesaurus. The syntax units are translated on the basis of these detected examples and the result of translation of the syntax unit are compounded to generate a second language sentence (c. f. abstract).

As indicated in the description of Figure 5 (column 10, lines 20 to 31) a calculating part 11, calculates word similarities expressing the similarity in meaning between the words in the examples stored and the words constituting the phrases from the simple syntax analyzing processing part, i.e., the words identified from the users input. On the basis of these words, similarity degrees and other parameters, the converting part 7 detects the examples most similar to the phrases from the simple syntax analyzing processing part 6.

Then, the most similar example, stored in a memory, is used for translation. The method of detection of the example phrases most similar to the input phrases used in the converting part 7 is described in the specification of Franz et al, starting in column 19, line 39.

The example most similar in meaning to an input is the one most suitable to be used in translation processing of that input. This example phrase is that phrase, for which the translation suitability, expressed as conditional probability of the example phrase P (example/input), is the highest (column 19, line 62 to 64). To obtain the example phrase having the greatest translation suitability with respect to the input phrase, it is necessary to obtain the probabilities $P(E)$ and $P(I/E)$ (c. 1. column 20, lines 17 to 20). $P(E)$ represents a priori

probability of the example, whereas $P(E/I)$ represents the probability of the example phrase E being transformed into the input phrase I and used.

As explained in connection with Figure 11, the priori probability $P(E)$ is determined on the basis of linguistic characteristics of the language to be translated into another language based on a set of language expressions typically used in the domain in which the translating apparatus is to be applied.

This is described in the cited reference Franz in column 20, line 26-36, as follows:

"The priori probability $P(E)$ must correspond to the suitability of the example phrase E being used in any input phrase, and therefore should for example reflect the following kinds of factor. That is, first it is necessary to reflect in the priori probability $P(E)$ the factor of what kinds of expression are frequently used in the domain (the type of expression (writing) inputted into the translating apparatus (for example writing appearing in machine manuals, or newspaper articles)) in which the translating apparatus is to be applied.

Specifically, example phrases E corresponding to expressions frequently used in the domain must be given higher priori probabilities $P(E)$ than example phrases E corresponding to expressions only rarely used and expressions having meaning content having little relation to the domain."

The examiner seems to equate the above to the specific calculation of overall confidence value of the claimed subject

matter of this application. The factor $P(E)$ of Franz is merely based on frequency of use and content and is therefore different than the overall confidence factor of the subject application.

Further, from the description of the calculation of the transformation probability, it appears that this probability indicates the matching degree or the similarity between an input phrase and an example phrase stored in a memory with regard to meaning. The disclosure of the cited reference does not support the Examiner's rejection.

As described in connection with Figure 12, the converting part reads an example phrase after receipt of an input phrase and calculates the transformation probability in step S 32. Thereafter, in step S 33 the translation suitability is calculated for the input phrase and the example phrase read from the memory. This procedure is repeated until the translation suitability is calculated for all example phrases (c. f. column 31, line 40 to line 54).

Thus, the transformation probability only indicates whether the input phrase matches the example phrase in meaning. There is no check whether the words and/or phrases identified for a certain user input really match the input, in particular a voice input.

According to a second embodiment disclosed by Franz et al, the converting part 7 includes a cache 7a (c. f. Figure 15) for storing provisionally inserted words and provisionally deleted words for further use as explained in connection with Figure 16.

With regard to this embodiment, Franz et al refers to another literature (cited in column 40, lines 44 to 47) in which a language model is mentioned that is based on the hypothesis that the probability of the recently-used word (being spoken) again

is higher than the probability of that word first appearing is proposed, wherein recently-used words are stored in memory means and the probability of a certain word being a predetermined word is calculated with reference to this memory means (c. f. column 40, lines 48 to 54).

According to column 41, lines 12 ff, the calculation of the transformation probability has something in common with the means of the literature referred to by Franz et al. Therefore, the transformation probabilities are based in some way on recently-used words or phrases stored in memory means.

However, the priori probability is based on linguistic characteristics of the language to be translated.

Thus, it appears that there is no indication in the disclosure of Franz et al to calculate confidence values for identified input terms, used together with probability values calculated on the basis of the use of data records.

The text passage in column 20, lines 27 to 67, which is referred to by the Examiner in connection with the confidence value of the identified input term is only concerned with the priori probability of the example phrases stored in a memory and not with a confidence value that is comparable with that of the present invention. i.e. that indicates the reliability of the [voice) input recognition.

According to the subject invention, as described in claim 18, a composite probability value is determined for a candidate term, is calculated based on its base probability value and a further factor representing the history of use of the candidate term over a period of time. There is no mention in the reference

Franz of a factor based on a use frequency of a certain record relative to a use frequency of the system.

Thus, the system of this application provides a method in which a composite probability value is used that is based on the historical usage of words by a user of a speech recognition system. Therefore, the probability value according to the present invention will be automatically adapted to a new user or to a new behavior/manner of usage, if the user or his/her habit changes.

The cited reference Franz does not, therefore, support a prima-facie case of obviousness. The modification of the teachings of Franz, in order to obtain the invention, as described in the claims submitted herein, would not have been obvious to one skilled in the art.


The above arguments apply equally to the rejected dependent claims.

Applicant appreciates the indication that claim 16 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. However, Applicant believes that this claim is patentable as it stands for the reasons stated herein.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

A check in the amount of \$1,020.00 is enclosed for a three month extension of time fee. The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,


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